AFCTN Test Report 94-053

AFCTB-ID 93-105

Technical Raster Transfer

Using:

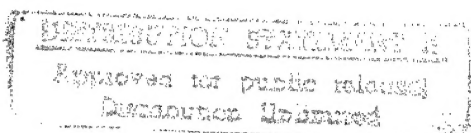## ASC/AMIS' Data

MIL-R-28002A (Raster)

Quick Short Test Report
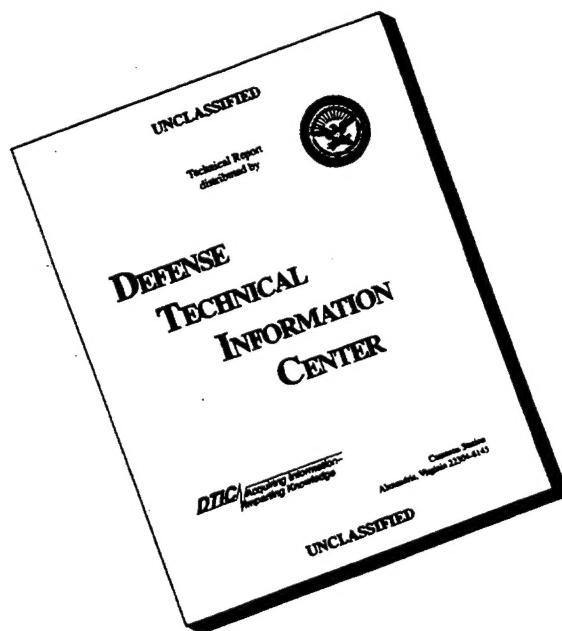
24 November 1993

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Using:

ASC/AMIS' Data

MIL-R-28002A (Raster)

Quick Short Test Report

24 November 1993

Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact
Gary Lammers
(513) 427-2295

AFCTN Contact
Mel Lammers
(513) 427-2295

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Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze ASC/AMIS's interpretation and use of the CALS standards in transferring technical Raster data. ASC/AMIS used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-105

**Date of
Evaluation:**   24 November 1993

Evaluator: George Elwood
                                  Air Force CALS Test Bed
                                  Det 2 HQ ESC/AV-2P
                                  4027 Colonel Glenn Hwy
                                  Suite 300
                                  Dayton OH 45431-1672

**Data
Originator:**   HQ ASC/AMIS
                                  Diane Sondergelt
                                  Wright-Patterson AFB, OH 45433

**Data
Description:**   Technical Manual Test
                                          3 Document Declaration files
                                          3 Raster file

**Data
Source System:**
                    1840
                                  HARDWARE
                                          Unknown
                                  SOFTWARE
                                          Intergraph XXXX

                    Raster
                                  HARDWARE
                                          Unknown
                                  SOFTWARE
                                          Unknown

Evaluation Tools Used:

> **MIL-STD-1840A (TAPE)**
>> SUN 3/280
>>> AFCTN *Tapetool v1.2.10 UNIX*
>
> **MIL-R-28002 (Raster)**
>> SUN SparcStation 2
>>> Carberry *CADLeaf Plus v3.1*
>>> AFCTN *validg4*
>>> AFCTN *calstb.475*
>>> AFCTN *xrastb.sun4*
>>> IGES Data Analysis (IDA) *IGESView v3.0*
>>> Island Graphics *IslandPaint v3.0*
>> SGI Indigo2
>>> AFCTN *xrastb.sgi*
>> PC 486/50
>>> AFCTN *validg4*
>>> IDA *IGESView Windows*
>>> Inset Systems *HiJaak v2.1*
>>> Inset Systems *HiJaak Window v1.0*
>>> Expert Graphics *RxHighlight v1.0*
>>> Corel *Ventura Publisher*

Standards Tested:

> MIL-STD-1840A
> MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape was hand delivered to the Air Force CALS Test Bed (AFCTB), and was not enclosed in a box in accordance with ASTM D 3951 requirements.

Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.10* utility. No errors and four notes were encountered while evaluating the contents of the tape labels. All of the errors are shown in Appendix A, Section Two, of the Tape Import Log included in this report.

A note was reported on the tape label version. MIL-STD-1840A permits the use of both version three and four. The use of the most current standard should be used and noted.

All three Document Declaration files were reported as having a short block. The end of the block was not padded out. This may cause some tape systems to be unable to read the data. No errors were noted in any of the files.

```
*** NOTE - Last block was incomplete.  Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 392, Block Number => 1
```

The physical structure of the tape meets the CALS MIL-STD-1840A requirements.

3.2.2 Declaration and Header Fields

No errors were reported in the Document Declaration file or data file headers. This portion of the tape meets the CALS requirements as defined in MIL-STD-1840A.

4. IGES Analysis

The tape contained no Initial Graphics Exchange Specification (IGES) files.

5. SGML Analysis

The tape contained no Standard Generalized Markup Language (SGML) files.

6. Raster Analysis

The tape contained three Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported that all three files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. No problems were noted.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using another utility available within the AFCTB, without a reported error. The resulting files were read into Island Graphics' *IslandPaint* and displayed.

The Raster files were read into Carberry's *CADLeaf* software, and displayed, without a reported error.

The files were read into IDA's *IGESView* and *IGESView for Windows* without a reported error. Both the UNIX and PC versions permitted the printing of the files.

The files were read into Inset Systems' *HiJaak for Windows* without a reported error.

The Raster files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into Rosetta Technologies' *Preview* and displayed.

The Raster files were read into Expert Graphics' *RxHighlight v1.0* and displayed without a reported error.

The Raster files on this tape meet the CALS specification as defined in MIL-R-28002A.

7. CGM Analysis

The tape contained no Computer Graphics Metafile (CGM) files.

8. Conclusions and Recommendations

The physical structure of the tape from ASC/AMIS was correct. No errors were reported in the CALS Document Declaration file or data file headers. This portion of the tape meets the CALS requirements as defined in MIL-STD-1840A.

The Raster files meet the the CALS MIL-R-28002A specification.

The tape submitted by the ASC/AMIS meets the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced: MIL-STD-1840A (1987) - Automated Interchange of Technical
Information ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes for
Information Interchange ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Nov 24 09:50:37 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set033

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D002	Document Declaration	D/00260	02048/000001	Extracted
D003	Document Declaration	D/00260	02048/000001	Extracted
D001R001	Raster	F/00128	02048/000057	Extracted
D002R001	Raster	F/00128	02048/000025	Extracted
D003R001	Raster	F/00128	02048/000049	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

```
CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Nov 24 09:50:29 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1TAPE01                          SONDERGD
3

  Label Identifier: VOL1
  Volume Identifier: TAPE01
  Volume Accessibility:
  Owner Identifier: SONDERGD
  Label Standard Version: 3

*** NOTE  (ANSI X3.27; 8.3.1.8) - The Label Standard Version
    should be 4 to represent the current level of ANSI X3.27.

HDR1D001            TAPE0100010001000100 93325 93325 000000UNIXTAPEV2.0

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: TAPE01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date:  93325
  Expiration Date:  93325
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: UNIXTAPEV2.0

HDR2D020480026000SONDERGD//USR/BIN     B          00

  Label Identifier: HDR2
```

    Recording Format: D
    Block Length: 02048
    Record Length: 00260
    Offset Length: 00

************ Tape Mark ***************

    Actual Block Size Found = 396 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 396, Block Number => 1

    Number of data blocks read = 1.

************ Tape Mark ***************

                    <<<<< PART OF LOG FILE REMOVED HERE >>>>>

************ Tape Mark ***************

############ End of Volume TAPE01 ##############

############ End Of Tape File Set ##############

Deallocating /dev/rmt0...

Tape Import Process terminated with 0 error(s), 0 warning(s),
and 4 note(s).

9.3   Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Wed Nov 24 09:50:37 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set033

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Intergraph, ASC/AM, WPAFB OH
srcdocid: X92D127595, Sht 1
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19931122
dstsys: EDCARS, OO-PKDE, HAFB UT
dstdocid: X92D127595, Sht 1
dstrelid: NONE
dtetrn: 19931122
dlvacc: NONE
filcnt: R1
ttlcls: Unclassified
doccls: Unclassified
doctyp: Wiring Diagram
docttl: Wiring Diagram, TFE-25 28vDC Power and Control

Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: X92D127595   07878   00010001UMEHU
001D
dstdocid: X92D127595,Sht1
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: Unclass
rtype: 1
rorient: 090,270

rpelcnt: 004416,006916
rdensty: 0200
notes: NONE

Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

Found file: D002
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Intergraph, ASC/AM, WPAFB OH
srcdocid: X92D127595, Sht 2
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19931122
dstsys: EDCARS, OO-PKDE, HAFB UT
dstdocid: X92D127595, Sht 2
dstrelid: NONE
dtetrn: 19931122
dlvacc: NONE
filcnt: R1
ttlcls: Unclassified
doccls: Unclassified
doctyp: Wiring Diagram
docttl: Wiring Diagram, TFE-25 28vDC Power and Control

Found file: D002R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: X92D127595   07878   00010001UMEHU
002D
dstdocid: X92D127595,Sht2
txtfilid: NONE
figid: NONE
srcgph: NONE

doccls: Unclass
rtype: 1
rorient: 090,270
rpelcnt: 004416,006916
rdensty: 0200
notes: NONE

Saving Raster Header File: D002R001_HDR
Saving Raster Data File: D002R001_GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D002.

Found file: D003
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Intergraph, ASC/AM, WPAFB OH
srcdocid: X92D127597, Sht 1
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19931122
dstsys: EDCARS, OO-PKDE, HAFB UT
dstdocid: X92D127597, Sht 2
dstrelid: NONE
dtetrn: 19931122
dlvacc: NONE
filcnt: R1
ttlcls: Unclassified
doccls: Unclassified
doctyp: Wiring Diagram
docttl: Wiring Diagram, TFE-25 115v 400Hz Power Distribution

Found file: D003R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: X92D127597   07878   00010001UMEHU
001D
dstdocid: X92D127597,Sht1

```
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: Unclass
rtype: 1
rorient: 090,270
rpelcnt: 004416,006916
rdensty: 0200
notes: NONE

Saving Raster Header File: D003R001_HDR
Saving Raster Data File: D003R001_GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D003.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```
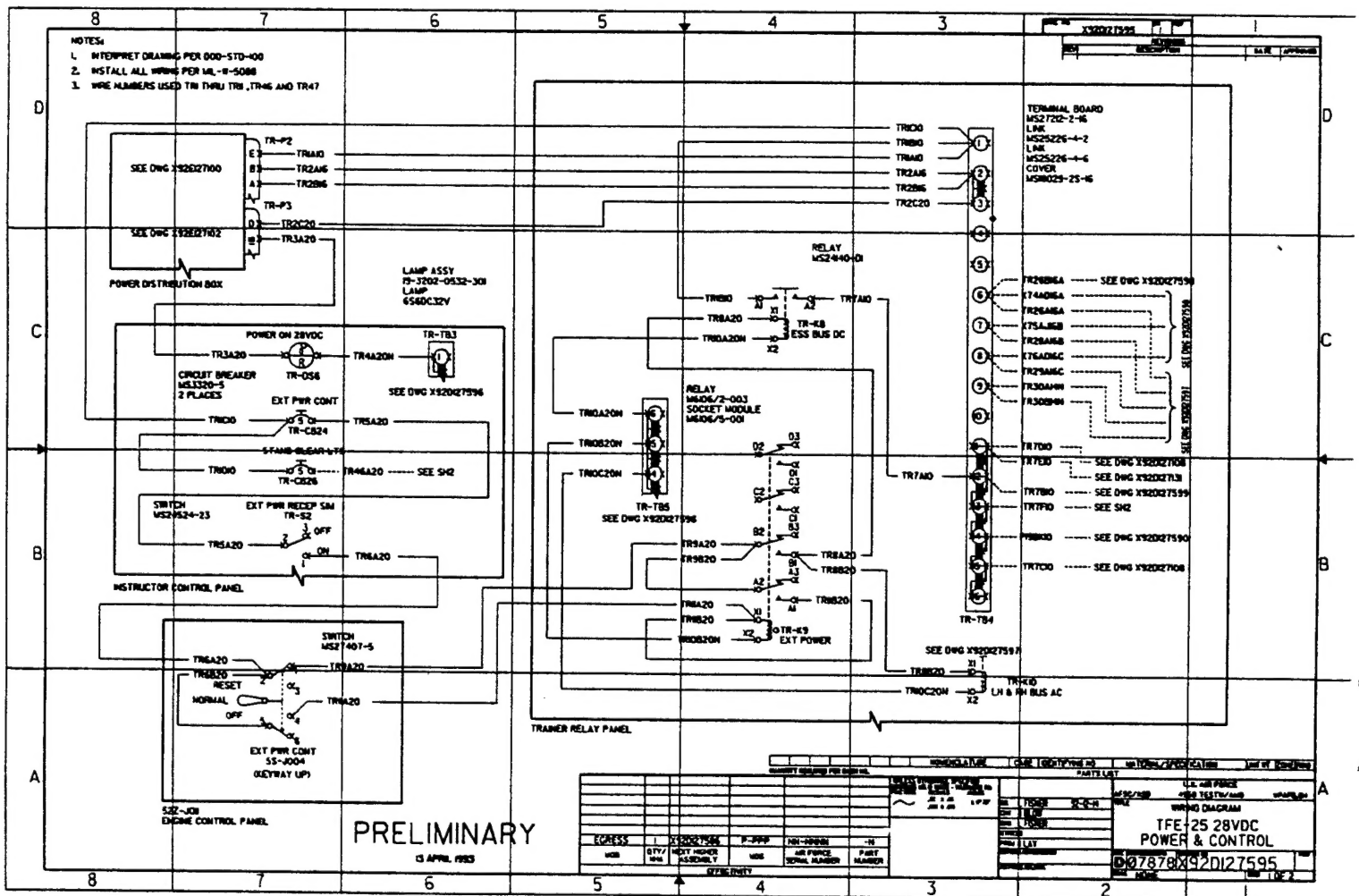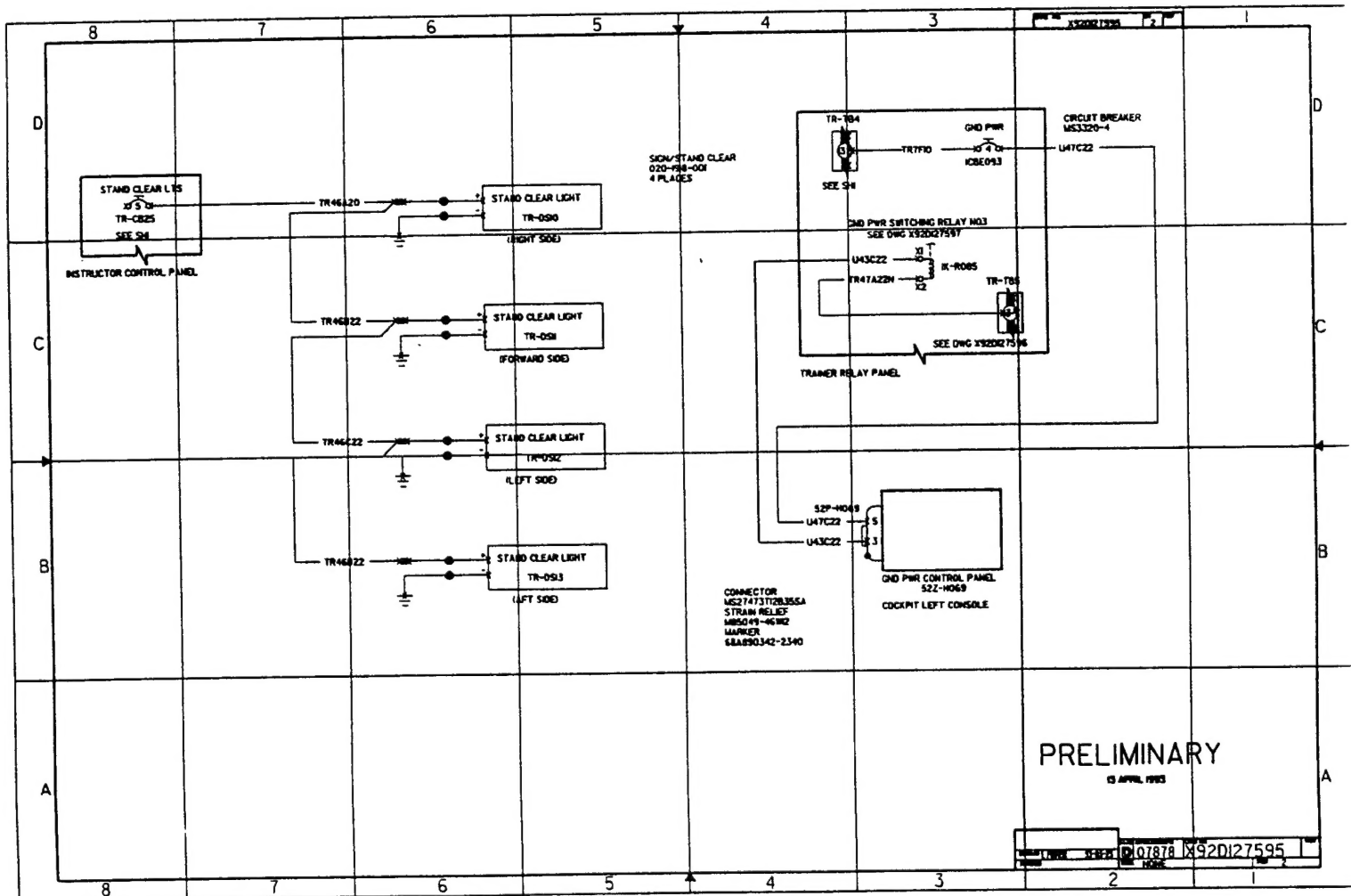
10. Appendix B - Detailed Raster Analysis

10.1 File D001R001

10.1.1 Output IGESView

10.2   File D002R001

10.2.1   Output IGESView

10.3   File D003R001

10.3.1   Output IGESView